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EXAMINER

KUGEL, TIMOTHY J

ART UNIT

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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/555,227	Applicant(s) COLLE ET AL.	
	Examiner Timothy J. Kugel	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-23 and 26-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-23 and 26-57 is/are rejected.
- 7) ☒ Claim(s) 44 and 56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 21-23 and 26-57 are pending as amended on 29 October 2008, claims 1-20, 24 and 25 being cancelled.
2. The text of those sections of Title 35, US Code not included in this action can be found in a prior Office action.

Response to Amendment and Arguments

3. Applicant's cancellation of claims 1-20, 24 and 25 has rendered the following moot:

The objection to claims 2 and 19 under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim has been withdrawn.

The objection to claim 7 because of informalities has been withdrawn.

The rejection of claims 1-10 and 18-20 under 35 USC 102(b) as being anticipated by US Patent 4,072,607 (Schiller hereinafter) has been withdrawn.

The rejection of claims 11-17, 24 and 25 under 35 USC § 103(a) as being unpatentable over Schiller in view of US Patent 6,222,083 (Colle '083 hereinafter) has been withdrawn.

Claims 1-20, 24 and 25 under 35 USC § 103(a) as being unpatentable over Colle '038 in view of Schiller has been withdrawn.

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4. Applicant's arguments have been fully considered but are not persuasive.

Applicant argues that Schiller fails to teach clathrate hydrate inhibitors; however, since Schiller teaches the same composition used in the same process as instantly claimed, the composition must act as a clathrate hydrate inhibitor, even if Schiller does not explicitly call it by that name. If there is a difference between the amount of inhibitor in the process taught by Schiller and the instant invention, it is not presented in the instant claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F2d 1181, 26 USPQ2d 1057 (Fed Cir 1993).

Applicant further argues that Colle '083 teaches away from the polymers taught by Schiller, asserting that the polymers of Colle '083 cannot have the NH₂ group required; however first, it is not the polymer of Schiller which the rejection relies upon, but the molecular weight distribution. Further, Colle '083 explicitly teaches the use of acrylamide (Column 9 Lines 4-22)—the polymer of Schiller—as well as the amides or esters of acyldehydroalanine, N-vinyl amide, N-allyl amide, maleimide, vinyl oxazoline, N-isopropyl methacrylamide or N-vinyl caprolactam (Column 2 Lines 24-33, Column 3 Lines 32-44 and Column 9 Lines 4-22) of the instant claims.

Applicant still further argues that Schiller and Colle '083 deal with different applications; however, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F2d 1443, 24

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USPQ2d 1443 (Fed Cir 1992). In this case, both are directed to the problem of reducing or eliminating fouling in wellbore applications and are therefore analogous.

Applicant finally argues that there is no rationale to combine the teachings of Schiller and Colle '083; however, ample rationale has been shown, that is the teaching of Schiller that the molecular weight distribution as such resulted in a synergistically better scale and precipitate inhibition (Schiller Column 3 Lines 3-7).

Claim Objections

5. Claims 38, 39, 44 and 55-57 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form.

Each of claims 38 and 56 recite the limitation “wherein said polymer exhibits only a single minimum point between only two peaks on said molecular weight distribution curve.” However, claims 37 and 55, from which claims 38 and 56 depend respectively, limit the molecular weight distribution curve to “**two or more minimum points** between **three or more peaks**” (emphasis added).

Claims 37-39 and 55-57 all require the molecular weight to have three or more maxima; however, since claims 26 and 40, from which claims 37 and 55 depend respectively, require the molecular weight to be bimodal—which requires two maxima.

Claim 44 recites the limitation “wherein the polymer is a blend of a high-molecular weight component and a low-molecular weight component of the same

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polymer.” However, claim 40, from which claim 44 depends requires a bimodal molecular weight distribution—which implies a high and low molecular weight component—of a single polymer.

Claim Rejections - 35 USC § 112

Claim Rejections - 35 USC § 102

6. Claims 21-23 are rejected under 35 USC 102(b) as being anticipated by US Patent 4,072,607 (Schiller hereinafter).

Schiller teaches a treating a petroleum oil field fluid to inhibit scale or precipitate (Column 1 Lines 7-13 and Column 2 Lines 3-6) with an aqueous composition prepared from an acrylamide containing polymer having a bi- or poly-modal molecular weight distribution wherein at least 60% of the polymer has a molecular weight of about 500 to about 2000 and at least about 10% of the polymer has a molecular weight of about 4000 to about 12000 (Column 2 Lines 25-63, Figure 1 and Figure 2) and wherein the molecular weight distribution curve shows either at least two peaks with minimums between (Figure 1) or a single minimum point between about 4000 and about 7500 with two peaks on either side of the minimum point (Figure 2).

Claim Rejections - 35 USC § 103

7. Claims 21-23 and 26-39 are rejected under 35 USC § 103(a) as being unpatentable over Colle '083 in view of Schiller.

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Colle '083 discloses a method of inhibiting hydrate formation in a petroleum fluid stream comprising the use of a aqueous polymer composition wherein the polymer may comprise acrylamide, amides or esters of acyldehydroalanine, N-vinyl amide, N-allyl amide, maleimide, vinyl oxazoline, N-isopropyl methacrylamide or N-vinyl caprolactam as detailed above.

Colle '083 does not disclose expressly the polymer having a bi- or poly-modal molecular weight distribution as instantly claimed.

Schiller teaches a treating a petroleum oil field fluid to inhibit scale or precipitate with an aqueous composition prepared from an acrylamide containing polymer having a bimodal molecular weight distribution wherein at least 60% of the polymer has a molecular weight of about 500 to about 2000 and at least about 10% of the polymer has a molecular weight of about 4000 to about 12000 and wherein the molecular weight distribution curve shows either at least two peaks with minimums between or a single minimum point between about 4000 and about 7500 with two peaks on either side of the minimum point as detailed above.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to ensure the polymers of Colle '083 where in the bi-, or poly-modal molecular weight distribution of Schiller. The rationale to do so would have been the motivation provided by the teaching of Schiller that the molecular weight distribution as such resulted in a synergistically better scale and precipitate inhibition (Schiller Column 3 Lines 3-7).

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8. Claims 26-39 are rejected under 35 USC § 103(a) as being unpatentable over Schiller as applied to claims 21-23 above in view of Colle '083 hereinafter).

Schiller teaches a treating a petroleum oil field fluid to inhibit scale or precipitate with an aqueous composition prepared from an acrylamide containing polymer having a bi- or poly-modal molecular weight distribution wherein at least 60% of the polymer has a molecular weight of about 500 to about 2000 and at least about 10% of the polymer has a molecular weight of about 4000 to about 12000 and wherein the molecular weight distribution curve shows either at least two peaks with minimums between or a single minimum point between about 4000 and about 7500 with two peaks on either side of the minimum point as detailed above.

Schiller does not disclose expressly the use of polymers comprising amides or esters of acyldehydroalanine, N-vinyl amide, N-allyl amide, maleimide, vinyl oxazoline, N-isopropyl methacrylamide or N-vinyl caprolactam.

Colle '083 discloses a method of inhibiting hydrate formation in a petroleum fluid stream (Column 1 Lines 10-27 and Column 2 Lines 2-7) comprising the use of a aqueous polymer composition wherein the polymer may comprise acrylamide—as taught by Schiller—amides or esters of acyldehydroalanine, N-vinyl amide, N-allyl amide, maleimide, vinyl oxazoline, N-isopropyl methacrylamide or N-vinyl caprolactam (Column 2 Lines 24-33, Column 3 Lines 32-44 and Column 9 Lines 4-22).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to replace the acrylamide containing polymer of Schiller with the amide or ester of acyldehydroalanine, N-vinyl amide, N-allyl amide, maleimide, vinyl oxazoline, N-

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isopropyl methacrylamide or N-vinyl caprolactam comprising polymers of Colle '083.

The rationale to do so would have been the motivation provided by the teaching of Colle '083 that such are functional equivalents and would therefore predictably inhibit scale or precipitate in petroleum fluid streams.

9. Claims 40-57 are rejected under 35 USC § 103(a) as being unpatentable over Colle '083 in view of Schiller as applied to claims 21-23 and 26-39 above in further view of US Patent 6,028,233 (Colle '233 hereinafter).

Colle '083 and Schiller combine to teach a method of inhibiting hydrate formation in a petroleum fluid stream comprising the use of a aqueous polymer composition wherein the polymer may comprise acrylamide, amides or esters of acyldehydroalanine, N-vinyl amide, N-allyl amide, maleimide, vinyl oxazoline, N-isopropyl methacrylamide or N-vinyl caprolactam having a bimodal or polymodal molecular weight wherein at least 60% of the polymer has a molecular weight of about 500 to about 2000 and at least about 10% of the polymer has a molecular weight of about 4000 to about 12000 and wherein the molecular weight distribution curve shows either at least two peaks with minimums between or a single minimum point between about 4000 and about 7500 with two peaks on either side of the minimum point as detailed above.

Neither Colle '083 nor Schiller disclose expressly N-isopropyl methacrylamide as instantly claimed.

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Colle '233 teaches a treating a petroleum oil field fluid to inhibit clathrate scale with an aqueous composition comprising acrylamide, N-vinyl acrylamide, N-allyl amide or N-isopropyl methacrylamide (Abstract) .

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include the N-isopropyl methacrylamide of Colle '233 in the process of Colle '083 and Schiller. The rationale to do so would have been the motivation provided by the teaching of Colle '233 that N-isopropyl methacrylamide is functionally equivalent to the polymers of Colle '083 and Schiller.

10. Claims 26-39 are rejected under 35 USC § 103(a) as being unpatentable over Schiller in view of Colle '233.

Schiller teaches a treating a petroleum oil field fluid to inhibit scale or precipitate with an aqueous composition prepared from an acrylamide containing polymer having a bi- or poly-modal molecular weight distribution wherein at least 60% of the polymer has a molecular weight of about 500 to about 2000 and at least about 10% of the polymer has a molecular weight of about 4000 to about 12000 and wherein the molecular weight distribution curve shows either at least two peaks with minimums between or a single minimum point between about 4000 and about 7500 with two peaks on either side of the minimum point as detailed above.

Schiller does not disclose expressly the use of N-isopropyl methacrylamide polymer.

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Colle '233 discloses a method of inhibiting hydrate formation in a petroleum fluid stream comprising the use of a aqueous polymer composition wherein the polymer may comprise acrylamide—as taught by Schiller—or N-isopropyl methacrylamide (Abstract).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to replace the acrylamide containing polymer of Schiller with the N-isopropyl methacrylamide polymer of Colle '233. The rationale to do so would have been the motivation provided by the teaching of Colle '233 that such are functional equivalents and would therefore predictably inhibit scale or precipitate in petroleum fluid streams.

Conclusion

11. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Kugel whose telephone number is (571) 272-1460. The examiner can normally be reached on 5:30 AM - 4:00 PM Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Timothy J. Kugel/
Primary Examiner, Art Unit 1796

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